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EXAMINER	
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ART UNIT	PAPER NUMBER
3623	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/801,130	BONABEAU, ERIC W.	
	Examiner	Art Unit	
	Peter Choi	3623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 June 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7,9-17,19-27,34,35,38,39 and 44-65* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7,9-17,19-27,34,35,38,39 and 44-65* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on June 2, 2006 has been entered.

Summary Of Instant Office Action

2. In the amendment received June 2, 2006, Applicant has amended claims 1, 15, 21, 34, 35, 38, and 39, cancelled claims 28, 29, 30, 32, 33, 36, 37, and 40, and has added new claims 44-65. Claims 1-7, 9-17, 19-27, 34-35, 38-39, and 44-65 are currently pending the application and have been examined on the merits discussed below in this **NON-FINAL** Office Action.

Response to Arguments

3. Applicant's arguments filed June 2, 2006 have been fully considered but they are not persuasive.

Applicant argues that Shinagawa proposes a different use of genetic algorithms than the claimed invention sets forth. Applicant asserts that rather than applying genetic algorithms directly to the business model and thereby solving the underlying problem, Shinagawa discloses applying genetic algorithms to the search strategy used to explore the solution space. Applicant asserts that Shinagawa uses genetic algorithms to modify a search strategy for looking for business models, not business models directly.

The Examiner respectfully disagrees. The Examiner asserts that a model is a representation of a device or process used in analysis and planning to facilitate understanding and to aid in decision making. The genetic algorithm taught by Shinagawa comprises searching strategy optimization means using chromosomes that specify a solution searching strategy, or a model of a potential solution. The Examiner asserts that a model is a representation of a potential strategy towards solving a problem; thus, "models" are analogous to the strategies in Shinagawa, as the solution searching means are disclosed as "solutions according to the strategies respectively indicated by the chromosomes" [Column 4, lines 37-39]. Shinagawa also discloses that genetic algorithms apply a biological evolution process to optimization problems in an analogical way, where each individual represents a candidate for the optimal solution and the genes arranged to the chromosome of an individual correspond to the values of

the variables constituting a solution [Column 2, lines 6-11]. Therefore, the solution searching means disclosed by Shinagawa is essentially a model, as each search strategy represents a unique solution. Shinagawa states that the processes of finding solutions and optimizing the solution searching strategies run in parallel, one's output being used as the other's input for the next cycle. The carrier allocation unit, in which a genetic algorithm is implemented, repetitively applies the genetic operators to the individuals, whose chromosomes represent different solution searching strategies. The population of individuals is thus used to produce successive offspring; hence, genetic algorithms are used in this process. The carrier allocation unit evaluates the fitness of the proposed delivery plans, and based on their fitness values, the carrier allocation unit selects the fittest individuals out of the present population and mates them with one another to produce the next generation.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1-7, 9-17, 19-27, 34-35, 38-39, and 44-65 are rejected under 35 U.S.C. 103(a) as being unpatentable over Keane (U.S Patent #5,737,581) in view of Shinagawa et al (U.S Patent #5,897,629).

As per claim 1, Keane teaches a method for generating business models for solving a selected business problem, the method comprising:

(a) describing a plurality of computer-simulateable business models **(memory 102 contains at least a quality model 104 and possibly other models, such as business 105, accounting 106, consumer 107, financial 108, and macroeconomic 109)**, [Column 3, lines 25-30, Column 7, lines 6-8 and Figure 1 {104, 105, 106, 108 and 109}], wherein a business model describes operations of businesses for solving the business problem **(enable a user to make certain decisions regarding which quality assurance measures to install; business model 400)** [Figure 4 {400}, described Column 2, lines 52-55 and Column 7, line 6 - Column 8, line 25], and wherein a business model has an associated operational performance model **(which is inferred by the enablement of a user to make certain decisions regarding which quality assurance measures to install)** [Figure 1 {105} and column 2, lines 54-55], comprising a financial model **(financial model 108)** [Column 3, lines 25-27] and wherein business model descriptions **(as discussed above)** comprise one or more computer-simulateable value propositions (VP) which describe output values provided by businesses **(goods/services purchased by customers, returning defective merchandise and switching to competitive produces due to defects, product**

purchased data 214 and market demand and returns data 227) [Column 5, lines 29-55];

(b) describing a business-model environment **(product flow)**, wherein the business-model environment comprises a plurality of computer-simulateable customer models **(customer and business models)**, wherein the customer models patronize the business models and the business models respond to the customer models' patronizing them by sending values **(product purchased data 214 and market demand and returns data 227)** to the customer models that patronize the business models **(business model receives information regarding consumer returns from Block 807 of the consumer model)** [Column 5, lines 28-55, Column 8, lines 16-18, Figure 4 described in Column 7, line 5-column 8, line 25]; and

(c) determining the operational performances of the businesses described by the plurality of business models by simulating [Column 4, lines 34-36 and Figs. 2 and 4, wherein execution (or implementation) of steps of the Figures and simulation of the system infer operations for determining performance of business(es) in accordance with above discussed plurality of business models]:

(i) the plurality of business models **(memory 102 contains at least a quality model 104 and possibly other models, such as business 105, accounting 106, consumer 107, financial 108, and macroeconomic 109)**; [Figure 1 {100 and 104, 105, 106, 108, 109}, and Column 3, lines 25-30] and

(ii) the business-model environment, including simulating the customer models receiving values from the business models in response to the customer models

patronizing the business models **(business model receives information regarding consumer returns from Block 807 of the consumer model, product purchased data 214, market demand and returns data 227)** [Column 5, lines 28-55, Column 8, lines 16-18, Figure 4 described in Column 7, line 5-column 8, line 25].

Keane does not teach the step of:

(d) generating a next plurality of business models from the simulated plurality of business models by performing an evolutionary method directly on the business models, including:

(i) determining business-model fitness in dependence on the operational business-model performances including financial performances,

(ii) selecting one or more business models in dependence on their fitness, and

(iii) transforming the selected business models into new business models by applying one or more genetic operators directly to the business models, wherein the new business models incorporate elements of the selected business models.

Shinagawa et al. is directed to utilizing genetic algorithm to find an optimal solution to a problem, resulting in the creation of new and modified delivery routes.

Shinagawa et al teaches the step of:

(d) generating **(producing)** a next plurality of business models **(new proposed delivery plans)** by performing an evolutionary method [Column 5, line 66 through column 6, line 54, wherein delivery planning unit 12 producing or "generating" a set or "plurality" of modified or new proposed delivery plans as indicated by column 6, lines 35-40; modified delivery route serving as new or next route and on finalizing said modified or new or next routes for all carriers, delivery planning unit 12 producing or generating new or next delivery plans which are termed as proposed delivery plans; said delivery plans are models, lines 50-52. Moreover, said delivery models or plans representing "business models", since they relate to the business of delivery of packages, lines 52-54, and cited genetic algorithm, Column 4, lines 63-65; searching strategy optimization means 1 creates individuals 3a-3c using a genetic algorithm. The individuals 3a-3c have their respective chromosomes, each of which indicates a strategy for solution search, Column 4, lines 29-34] including:

(i) determining business-model fitness in dependence on the operational business-model performances [Column 6, lines 15-23, wherein "evaluating fitness" of proposed delivery plans or models indicating "determining business model fitness" and said fitness relating to "operational business model performance" as discussed in claim 1c above; The carrier allocation unit 11 evaluates the fitness of each proposed delivery plan received from the delivery planning unit 12, Column 9, lines 12-14; The carrier allocation unit 11 evaluates chromosomes 50, 50a, and 50b by calculating the fitness values of delivery plans 41, 42, and 43 derived from them, respectively, Column 9, lines 21-24];

(ii) selecting one or more business models in dependence of on their fitness [Column 6, lines 15-23, wherein allocation unit 11 "selecting fittest individuals based on their fitness values", and cited individuals pointing to delivery plans or models or "business models", column 2, lines 22-23: individuals being candidate solutions, and said solutions are delivery plans, column 6, lines 21-23: choosing delivery plans or models as the optimal solutions; Based on the fitness values, the carrier allocation unit 11 selects a plurality of individual pairs, Column 9, lines 15-16];

(iii) transforming the selected business models into new business models by applying one or more genetic operators [Column 5, lines line 66 through column 6, line 3, wherein applying genetic algorithm and its operators crossover, mutation etc. indicating reference's performing "transformation or transforming" above discussed selected delivery plans or models or business models into above discussed next or new delivery plans or business models] directly to the business models, wherein the new business models incorporate elements of the selected business models **(The mated parent individuals are then subjected to a crossover process. Crossover algorithms combine one part of one parent chromosome with the other part of the other parent chromosome to produce another chromosome, thereby producing a new individual. The offspring individual produced through such a crossover process inherits some traits from both parents)** [Column 2, lines 37-43].

Keane teaches the step of simulating quality of a business's product flow, yet Keane does not expressly teach the application of a genetic algorithm comprising selection, crossover and mutation operators for building a fittest business model. However, Shinagawa et al. discloses the use of genetic algorithms that perform the steps of performing an evolutionary method on models, including determining model fitness, selection of models based on their fitness, and transforming models by applying genetic operators to yield new models that incorporate elements of the original models. Both Keane and Shinagawa et al. are directed toward optimizing solutions in business planning situations [e.g., Keane's simulator assists a user in making business performance decisions, as seen in Column 2, lines 52-55, and Shinagawa et al. solves commodity delivery problems, as seen in Column 3, lines 1-7]. Shinagawa et al. provides a user with a problem solver "for solving mathematical programming problems, which is capable of finding better solutions at a higher speed" [Column 3, lines 13-16]. Keane's system assists a user with solving mathematical problems as well [Column 2, lines 1-23]; therefore, the Examiner submits that it would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to incorporate the steps of performing an evolutionary method on models, including determining model fitness, selection of models based on their fitness, and transforming models by applying genetic operators to yield new models that incorporate elements of the original models, as taught by Shinagawa et al, with Keane's financial simulations in order to allow Keane to solve its financial business (i.e., mathematical programming) problems with better

solutions and at a higher speed [as suggested in Column 3, lines 13-16 of Shinagawa et al.], and the combination would provide a system enabling a user to efficiently and quickly solve multi-constraint problems as commonly faced by businesses, and for use as a planning guide to determine the impact of different models on business performance.

As per claim 2, Keane teaches the method of claim 1 further comprising repeating one or more times (c) and (d) **(running another period of the model)**, wherein each repeat of (c) simulates the plurality of business models resulting from the previous iteration of (d) [Figure 2 {254}, column 4, lines 34-38 recited with column 6, lines 39-49, wherein "simulation continues" after the determination made at step 254, and "user given the opportunity to reconfigure (generate) next (or new) quality model to improve performance" inferring claimed "repeating the steps" for simulating models obtained in the prior (or previous) steps as per user's choice of steps including (c) and (d)].

As per claim 3, Keane teaches the method of claim 1 wherein the business models **(memory 102 contains at least a quality model 104 and possibly other models, such as business 105, accounting 106, consumer 107, financial 108, and macroeconomic 109)**, [Column 3, lines 25-30, Column 7, lines 6-8 and Figure 1 {104, 105, 106, 108 and 109}] are elements for solving the business problem **(enable a user to make certain decisions regarding which quality assurance measures to install;**

business model 400; which is inferred by the enablement of a user to make certain decisions regarding which quality assurance measures to install) [Figure 4 {400}, described Column 2, lines 52-55 and Column 7, line 6 - Column 8, line 25, Figure 1 {105} and column 2, lines 54-55].

Keane does not teach that the business models are elements in a space of business models. However, Shinagawa et al. teaches the use of a solution space (indicating that each possible solution is a sub-element within said solution space) [Column 13, lines 41-51, Figure 4, Column 6, lines 50-52].

Keane teaches the step of simulating quality of a business's product flow, yet Keane does not expressly teach the application of a genetic algorithm comprising selection, crossover and mutation operators for building a fittest business model. However, Shinagawa et al. discloses the use of genetic algorithms that perform the steps of performing an evolutionary method on models, including determining model fitness, selection of models based on their fitness, and transforming models by applying genetic operators to yield new models that incorporate elements of the original models. Both Keane and Shinagawa et al. are directed toward optimizing solutions in business planning situations [e.g., Keane's simulator assists a user in making business performance decisions, as seen in Column 2, lines 52-55, and Shinagawa et al. solves commodity delivery problems, as seen in Column 3, lines 1-7]. Shinagawa et al. provides a user with a problem solver "for solving mathematical programming problems,

which is capable of finding better solutions at a higher speed" [Column 3, lines 13-16]. Keane's system assists a user with solving mathematical problems as well [Column 2, lines 1-23]; therefore, the Examiner submits that it would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to incorporate the steps of performing an evolutionary method on models, including determining model fitness, selection of models based on their fitness, and transforming models by applying genetic operators to yield new models that incorporate elements of the original models, as taught by Shinagawa et al, with Keane's financial simulations in order to allow Keane to solve its financial business (i.e., mathematical programming) problems with better solutions and at a higher speed [as suggested in Column 3, lines 13-16 of Shinagawa et al.], and the combination would provide a system enabling a user to efficiently and quickly solve multi-constraint problems as commonly faced by businesses, and for use as a planning guide to determine the impact of different models on business performance.

As per claim 4, Keane teaches the method of claim 1 wherein at least two business models interact, and wherein (c) further comprises simulating interactions between business models [Column 1, lines 11-12 and Column 6, lines 52-55].

As per claim 5, Keane does not explicitly teach the method of claim 1 wherein the genetic operators comprise a cross-over operator which transforms at least two parent business models into at least one new business model by combining characteristics of

both parent business models into the characteristics of the at least one new business model.

Keane teaches business models (as discussed above) but not cross-over operators which transform at least two parent business models into at least one new business model by combining characteristics of both parent business models into the characteristics of the at least one new business model. However, Shinagawa et al teaches a cross-over process combining one part of one parent chromosome with the other part of the other parent chromosome to produce another chromosome, thereby producing a new individual [Column 2, lines 37-43].

Keane teaches the step of simulating quality of a business's product flow, yet Keane does not expressly teach the application of a genetic algorithm comprising selection, crossover and mutation operators for building a fittest business model. However, Shinagawa et al. discloses the use of genetic algorithms that perform the steps of performing an evolutionary method on models, including determining model fitness, selection of models based on their fitness, and transforming models by applying genetic operators to yield new models that incorporate elements of the original models. Both Keane and Shinagawa et al. are directed toward optimizing solutions in business planning situations [e.g., Keane's simulator assists a user in making business performance decisions, as seen in Column 2, lines 52-55, and Shinagawa et al. solves commodity delivery problems, as seen in Column 3, lines 1-7]. Shinagawa et al.

provides a user with a problem solver "for solving mathematical programming problems, which is capable of finding better solutions at a higher speed" [Column 3, lines 13-16]. Keane's system assists a user with solving mathematical problems as well [Column 2, lines 1-23]; therefore, the Examiner submits that it would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to incorporate the steps of performing an evolutionary method on models, including determining model fitness, selection of models based on their fitness, and transforming models by applying genetic operators to yield new models that incorporate elements of the original models, as taught by Shinagawa et al, with Keane's financial simulations in order to allow Keane to solve its financial business (i.e., mathematical programming) problems with better solutions and at a higher speed [as suggested in Column 3, lines 13-16 of Shinagawa et al.], and the combination would provide a system enabling a user to efficiently and quickly solve multi-constraint problems as commonly faced by businesses, and for use as a planning guide to determine the impact of different models on business performance.

As per claim 6, although not taught by Keane, Shinagawa et al. teaches the method of claim 1 wherein the genetic operators comprise a mutation operator **(mutation process)** which transforms a parent business model into a new business model by modifying a characteristic of the parent business model **(changes genes located in certain loci of a chromosome to other values, thereby producing a new individual; The mated parent individuals are then subjected to a crossover**

process. Crossover algorithms combine one part of one parent chromosome with the other part of the other parent chromosome to produce another chromosome, thereby producing a new individual. The offspring individual produced through such a crossover process inherits some traits from both parents) [Column 2, lines 37-49].

Keane teaches the step of simulating quality of a business's product flow, yet Keane does not expressly teach the application of a genetic algorithm comprising selection, crossover and mutation operators for building a fittest business model. However, Shinagawa et al. discloses the use of genetic algorithms that perform the steps of performing an evolutionary method on models, including determining model fitness, selection of models based on their fitness, and transforming models by applying genetic operators to yield new models that incorporate elements of the original models. Both Keane and Shinagawa et al. are directed toward optimizing solutions in business planning situations [e.g., Keane's simulator assists a user in making business performance decisions, as seen in Column 2, lines 52-55, and Shinagawa et al. solves commodity delivery problems, as seen in Column 3, lines 1-7]. Shinagawa et al. provides a user with a problem solver "for solving mathematical programming problems, which is capable of finding better solutions at a higher speed" [Column 3, lines 13-16]. Keane's system assists a user with solving mathematical problems as well [Column 2, lines 1-23]; therefore, the Examiner submits that it would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to incorporate the steps of

performing an evolutionary method on models, including determining model fitness, selection of models based on their fitness, and transforming models by applying genetic operators to yield new models that incorporate elements of the original models, as taught by Shinagawa et al, with Keane's financial simulations in order to allow Keane to solve its financial business (i.e., mathematical programming) problems with better solutions and at a higher speed [as suggested in Column 3, lines 13-16 of Shinagawa et al.], and the combination would provide a system enabling a user to efficiently and quickly solve multi-constraint problems as commonly faced by businesses, and for use as a planning guide to determine the impact of different models on business performance.

As per claim 7, Keane teaches the method of claim 1 wherein the business models **(Quality model 104, Business Model 105, Accounting Model 106, Macroeconomic model 109, Financial Market model 108)** comprise parameter data specifying characteristics of the business operations described by the business models **(model parameters)** [Figure 1 {104, 105, etc.} and Column 3, lines 52-67].

As per claim 9, Keane teaches the method of claim 8 wherein VPs comprise descriptions of at least one of: the natures of one or more goods or services provided **(goods/services purchased by customer)**, qualities of the goods or services **(defective products exchanged by customers)**, customers for goods and services,

relations with other business models, and marketing to customers or business models [Column 5, lines 29-36].

As per claim 10, Keane teaches the method of claim 1 wherein business model descriptions comprises one or more computer-simulateable operational approaches (OA) which describe inputs to businesses and transformations of inputs to output values by businesses **(costs associated with production, including the capital, labor and material requirements, physical requirements of the plant, warehouse, etc.)** [Column 5, lines 12-14 and 29-30 recited with column 4, lines 2-10].

As per claim 11, Keane teaches the method of claim 10 wherein the OAs comprise descriptions of at least one of: inputs needed for the goods or services provided **(material requirements for the product and quality assurance measures)**, technology employed to produce the goods or services, and capital and labor needed for production **(capital and labor requirements of the product and quality assurance measures)** [Column 4, lines 2-10].

As per claim 12, Keane teaches the method of claim 1 wherein business model descriptions comprises one or more computer-simulateable revenue mechanisms (RM) which describe pricing and cost models **(pricing information for the product, initial stock price and book value, cost requirements for quality assurance measures**

and production) by which businesses acquire revenues [Figure 1 {106, 108}, column 4, lines 2-18 and column 2, line 55].

As per claim 13, Keane teaches the method of claim 12 wherein the RMs comprise descriptions of at least one of: a margin or an amount per transaction **(pricing information for the product)**, a margin or an amount per unit time, a margin or an amount per unit volume, a transaction pricing mechanism, a subscription pricing mechanism, a flat rate pricing mechanism, and a membership-fee pricing mechanism [Column 4, lines 2-18 and column 2, line 55].

As per claim 14, Keane teaches the method of claim 1 wherein business models comprise descriptions of at least one of: one or more inputs to a business, one of more values output from a business, one or more transformations of inputs into output values by a business, labor and capital required for a business **(accounting, business and quality models containing capital, material, and labor requirements)**, and one or more pricing models for a business **(accounting model containing pricing information for the product)** [Figure 1 {104, 105, 106, 108, 109, 107}, column 3, lines 25-28, column 4, lines 2-18 and column 5, lines 29-30].

As per claim 15, Keane teaches a method for generating business models for solving a selected business problem comprising:

(a) describing a plurality of computer-simulateable building blocks **(memory 102 contains at least a quality model 104 and possibly other models, such as business 105, accounting 106, consumer 107, financial 108, and macroeconomic 109)**, [Column 3, lines 25-30, Column 7, lines 6-8 and Figure 1 {104, 105, 106, 108 and 109}] wherein the building blocks comprise one or more business elements of the business problem **(capital, material and labor requirements of quality assurance measures and production, product pricing, etc.)**, and wherein the building blocks further comprise:

(i) one or more computer- simulateable value proposition (VP) building blocks which describe output values provided by businesses **(goods/services purchased by customers, returning defective merchandise and switching to competitive produces due to defects)** [Column 5, lines 29-55],

(ii) one or more computer-simulateable operational approach (OA) building blocks which describe inputs to businesses and transformations of inputs to output values by businesses **(costs associated with production, including the capital, labor and material requirements, physical requirements of the plant, warehouse, etc.)** [Column 5, lines 12-14 and 29-30 recited with column 4, lines 2-10], and

(iii) one or more computer-simulateable revenue mechanism (RM) building blocks which describe pricing and cost models by which businesses acquire revenues **(pricing information for the product, initial stock price and book value, cost requirements for quality assurance measures and**

production) by which businesses acquire revenues [Figure 1 {106, 108}, column 4, lines 2-18 and column 2, line 55],

(b) generating an initial plurality of business models [See discussion of claim 1d], wherein a business model describes operations of businesses for solving the business problem **(scheduled delivery plans)**, and wherein a business model comprises a plurality of building blocks and an associated operational performance model comprising a financial model **(financial model 108)** [Column 3, lines 25-27] [See discussion of building blocks in 15a above];

(c) describing a business-model environment **(product flow)**, wherein the business-model environment comprises a plurality of computer-simulateable customer models **(customer and business models)**, wherein the customer models patronize the business models and the business models respond to the customer models' patronizing them by sending values **(product purchased data 214 and market demand and returns data 227)** to the customer models that patronize the business models **(business model receives information regarding consumer returns from Block 807 of the consumer model)** [Column 5, lines 28-55, Column 8, lines 16-18, Figure 4 described in Column 7, line 5-column 8, line 25],

(d) determining the operational performances of the businesses described by the plurality of business models by simulating the plurality of business models and by simulating the environment, including simulating the customer models receiving values from the business models in response to the customer models patronizing the business models [See discussion of claim 1c above];

(e) generating a next plurality of business models from the simulated plurality of business models by performing an evolutionary method directly to the business models, wherein the evolutionary method uses a fitness dependent on the operational business-model performances including financial performances and applies genetic operators directly to the building-blocks of business models [See discussion of claim 1d above];

(f) repeating one or more times (d) and (e), **(running another period of the model)**, wherein each repeat of (d) simulates the plurality of business models resulting from the previous iteration of (e) [Figure 2 {254}, column 4, lines 34-38 recited with column 6, lines 39-49, wherein "simulation continues" after the determination made at step 254, and "user given the opportunity to reconfigure (generate) next (or new) quality model to improve performance" inferring claimed "repeating the steps" for simulating models obtained in the prior (or previous) steps as per user's choice of steps including (c) and (d)].

Claim 16 recites limitations already addressed by the rejection of claim 3 above; therefore, the same rejection applies.

As per claim 17, Keane teaches the method of claim 15 wherein each business element comprises a description of at least one of: an input to a business, a value output from a business, a transformation employed by a business, and a consideration received by a business for an output value [Column 3, lines 25-42, wherein the citation

of "various models are inputted" points to "at least an input" to a business, since each model is an "element" of the business].

As per claim 19, Keane teaches the method of claim 15 wherein the customer models descriptions of customer behaviors, wherein the behaviors comprise patronizing a business model **(good/services purchased or returned by customers; customers switching to competitive products due to defects)** [Column 5, lines 28-55].

As per claim 20, Keane teaches the method of claim 19 wherein the customer models descriptions of customer behaviors, wherein the behaviors further comprise choosing a business model to patronize **(goods/services purchased or returned by customers; customers switching to competitive products due to defects)** and being idle (customers not performing these tasks {purchasing or returning goods/services, or switching to competitive products} are considered to be in an idle state) [Column 5, lines 28-55].

As per claim 21, although not specifically taught by Keane, Sinagawa et al. teaches the method of claim 15 wherein the evolutionary method comprises:

(a) determining business-model fitness in dependence on the operational business-model performances [Column 6, lines 15-23, wherein "evaluating fitness" of proposed delivery plans or models indicating "determining business model fitness" and said fitness relating to "operational business model performance" as discussed in claim

1c above; The carrier allocation unit 11 evaluates the fitness of each proposed delivery plan received from the delivery planning unit 12, Column 9, lines 12-14; The carrier allocation unit 11 evaluates chromosomes 50, 50a, and 50b by calculating the fitness values of delivery plans 41, 42, and 43 derived from them, respectively, Column 9, lines 21-24],

(b) selecting one or more business models in dependence of on their fitness [Column 6, lines 15-23, wherein allocation unit 11 "selecting fittest individuals based on their fitness values", and cited individuals pointing to delivery plans or models or "business models", column 2, lines 22-23: individuals being candidate solutions, and said solutions are delivery plans, column 6, lines 21-23: choosing delivery plans or models as the optimal solutions; Based on the fitness values, the carrier allocation unit 11 selects a plurality of individual pairs, Column 9, lines 15-16], and

(c) transforming the selected business models into new business models by applying one or more genetic operators [Column 5, lines line 66 through column 6, line 3, wherein applying genetic algorithm and its operators crossover, mutation etc. indicating reference's performing "transformation or transforming" above discussed selected delivery plans or models or business models into above discussed next or new delivery plans or business models] directly to the business models, wherein the new business models incorporate elements of the selected business models **(The mated parent individuals are then subjected to a crossover process. Crossover algorithms combine one part of one parent chromosome with the other part of the other parent chromosome to produce another chromosome, thereby producing a**

new individual. The offspring individual produced through such a crossover process inherits some traits from both parents) [Column 2, lines 37-43].

The fitness value determination in Shinagawa et al. is not explicitly disclosed as being based on financial performance. However, the objective function in an optimization problem represents the biological environment, and the value of this objective function indicates the fitness of each individual to the biological environment [Column 2, lines 11-14]. As it is notoriously known that finances and profit are integral in business, the ensuing profit and finances of each potential business model would be a mitigating factor in selection; therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify the combined teachings of Keane and Shinagawa et al. to include the step of using financial performance to determine model fitness, because the resulting combination would reflect the importance of performance measures that are integral to the business and would enable users to make informed decisions.

Keane teaches the step of simulating quality of a business's product flow, yet Keane does not expressly teach the application of a genetic algorithm comprising selection, crossover and mutation operators for building a fittest business model. However, Shinagawa et al. discloses the use of genetic algorithms that perform the steps of performing an evolutionary method on models, including determining model fitness, selection of models based on their fitness, and transforming models by applying

genetic operators to yield new models that incorporate elements of the original models. Both Keane and Shinagawa et al. are directed toward optimizing solutions in business planning situations [e.g., Keane's simulator assists a user in making business performance decisions, as seen in Column 2, lines 52-55, and Shinagawa et al. solves commodity delivery problems, as seen in Column 3, lines 1-7]. Shinagawa et al. provides a user with a problem solver "for solving mathematical programming problems, which is capable of finding better solutions at a higher speed" [Column 3, lines 13-16]. Keane's system assists a user with solving mathematical problems as well [Column 2, lines 1-23]; therefore, the Examiner submits that it would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to incorporate the steps of performing an evolutionary method on models, including determining model fitness, selection of models based on their fitness, and transforming models by applying genetic operators to yield new models that incorporate elements of the original models, as taught by Shinagawa et al, with Keane's financial simulations in order to allow Keane to solve its financial business (i.e., mathematical programming) problems with better solutions and at a higher speed [as suggested in Column 3, lines 13-16 of Shinagawa et al.], and the combination would provide a system enabling a user to efficiently and quickly solve multi-constraint problems as commonly faced by businesses, and for use as a planning guide to determine the impact of different models on business performance.

Claim 22 recites limitations already addressed by the rejection of claim 5 above; therefore, the same rejection applies.

Claim 23 recites limitations already addressed by the rejection of claim 6 above; therefore, the same rejection applies.

As per claim 24, Keane et al. teaches the method of claim 15, wherein each building block describes at least one of: one or more inputs to a business, one or more values output from a business, one or more transformations of inputs into output values by a business **(accounting, business and quality models containing capital, material, and labor requirements)**, one or more pricing models for a business **(accounting model containing pricing information for the product)**, one or more performances of a business [Figure 1 {104, 105, 106, 108, 109, 107}, column 3, lines 25-28, column 4, lines 2-18 and column 5, lines 29-30, Column 2, line 55].

Claim 25 recites limitations already addressed by the rejection of claim 9 above; therefore, the same rejection applies.

Claim 26 recites limitations already addressed by the rejection of claim 11 above; therefore, the same rejection applies.

Claim 27 recites limitations already addressed by the rejection of claim 13 above; therefore, the same rejection applies.

As per claim 34, Keane teaches a method for generating business models for solving a selected business problem, the method comprising:

(a) describing a plurality of computer-simulateable building blocks, wherein the building blocks include one or more business elements of the business problem [See discussion of claim 15a above] and further comprise:

(i) one or more computer-simulateable value proposition (VP) building blocks which describe output values provided by businesses [See discussion of claim 15(i)] by comprising information describing at least the one of: the natures of one or more goods or services provided, qualities of the goods or services, customers for goods and services, relations with other business models, and marketing to customers or business models [See discussion of claim 9],

(ii) one or more computer-simulateable operational approach (OA) building blocks which describe inputs to businesses and transformations of inputs to output values by businesses [See discussion of claim 10] by comprising information describing at least one of: inputs needed for goods or services provided, technology employed to produce the goods or services, and capital and labor needed for production [See discussion of claim 11], and

(iii) one or more computer-simulateable revenue mechanism (RM) building blocks which describe pricing and cost models by which businesses

acquire revenues [See discussion of claim 12] by comprising information describing at least one of: a margin or an amount per transaction, a margin or an amount per unit time, a margin or amount per unit volume, transaction pricing mechanism, a subscription pricing mechanism, a flat rate pricing mechanism, and a membership fee pricing mechanism [See discussion of claim 13],

(b) generating an initial plurality of business models, wherein a business model describes operations of businesses for solving the business problem, and wherein a business model comprises a plurality of building blocks and an associated operational performance model comprising a financial model **(financial model 108)** [Column 3, lines 25-27] [See discussion of claim 15b above],

(c) describing a business-model environment, wherein the business-model environment comprises a plurality of computer-simulateable customer-models, wherein the customer models patronize the business models and the business models respond to the customer models' patronizing them by sending values to the customer models that patronize the business models [See discussion of claim 15c],

(d) determining the operational performances of the businesses described by the plurality of business models by simulating the plurality of business models and by simulating the environment, including simulating the customer models receiving values from the business models in response to the customer models patronizing the business models [See discussion of claim 15d above] and

(e) generating a next plurality of business models from the simulated plurality of business models by performing an evolutionary method directly on the business

models, wherein the evolutionary method uses a fitness dependent on the operational business-model performances including financial performances and applies genetic operators directly to the building-blocks of business models [See discussion of claim 15e above], and

(f) repeating one or more times (c) and (d), wherein each repeat of (c) simulates that plurality of business models resulting from the previous iteration of (d) [See discussion of claim 15f above].

As per claim 35, Keane teaches a method for generating business models for solving a selected business problem, the method comprising:

(a) describing a plurality of computer-simulateable building blocks, wherein the building blocks include one or more business elements of the business problem [See discussion of claim 34a above] and further comprise:

(i) one or more computer-simulateable value proposition (VP) building blocks which describe output values provided by businesses by comprising information describing at least one of: the natures of one or more goods or services provided, qualities of the goods or services, customers for goods and services, relations with other business models, and marketing to customers or business models [See discussion of claim 34(a)(i) above],

(ii) one or more computer-simulateable operational approach (OA) building blocks which describe inputs to businesses and transformations of inputs to output values by businesses by comprising information describing at least one

of: inputs needed for goods or services provided, technology employed to produce the goods or services, and capital and labor needed for production [See discussion of claim 34(a)(ii) above], and

(iii) one or more computer-simulateable revenue mechanism (RM) building blocks which describe pricing and cost models by which businesses acquire revenues by comprising information describing at least one of: a margin or an amount per transaction, a margin or an amount per unit time, a margin or amount per unit volume, a transaction pricing mechanism, a subscription pricing mechanism, a flat rate pricing mechanism, and a membership fee pricing mechanism [See discussion of claim 34(a)(iii) above],

(b) describing a business-model environment, wherein the business-model environment comprises a plurality of computer-simulateable customer models, wherein the customer models patronize the business models and the business models respond to the customer models' patronizing them by sending values to the customer models that patronize the business models, [See discussion of claim 1b above], generating an initial plurality of business models, wherein a business model describes operations of businesses for solving the business problem, and wherein a business model comprises a plurality of building blocks and an associated operational performance model comprising a financial model **(financial model 108)** [Column 3, lines 25-27] [See discussion of claim 15b above],

(c) determining the operational performances of the businesses described by the plurality of business models by

(i) simulating the plurality of business models [Column 3, lines 25-30, wherein cited "quality model, business model etc." and "models simulated" indicating reference's teaching the claimed feature]; and

(ii) simulating the environment, including simulating the customer models, and receiving values from the business models [See discussion of claim 15d above], and

(d) generating a next plurality of business models from the simulated plurality of business models by performing an evolutionary method directly on the business models, wherein the evolutionary method uses a fitness dependent on the operational business-model performances including financial performances and applies genetic operators to the building-blocks of business models [See discussion of claim 15e above], and

(e) repeating one or more times (c) and (d), wherein each (c) simulates that plurality of business models resulting from the previous iteration of (d) [See discussion of claim 15e above].

As per claim 38, Keane teaches computer executable software instructions stored on a computer readable medium **(computer program)** [lines 20-22 of Abstract, Column 3, lines 16-17, wherein "program" infers claimed "instructions" and "memory" encompasses storage media or devices, such as HD, CD, Diskette etc. which are considered computer readable and are used to store "programs or instructions"], the software instructions for causing a computer to:

(a) characterize a plurality of computer-simulateable building blocks, wherein the building blocks comprise one or more business elements of the business problem [See discussion of claim 15a above], and wherein the building blocks further comprise:

(i) one or more computer- simulateable value proposition (VP) building blocks which describe output values provided by businesses [See discussion of claim 15a(i) above],

(ii) one or more computer-simulateable operational approach (OA) building blocks which describe inputs to businesses and transformations of inputs to output values by businesses [See discussion of claim 15a(ii) above], and

(iii) one or more computer-simulateable revenue mechanism (RM) building blocks which describe pricing and cost models by which businesses acquire revenues [See discussion of claim 15a(iii) above],

(b) generate an initial plurality of business models, wherein a business model describes operations of businesses for solving the business problem, and wherein a business model comprises a plurality of building blocks and an associated operational performance model comprising a financial model **(financial model 108)** [Column 3, lines 25-27] [See discussion about building blocks in claim 15b above],

(c) describing a business-model environment, wherein the business-model environment comprises a plurality of computer-simulateable customer models, wherein the customer models patronize the business models and the business models respond to the customer models' patronizing them by sending values to the customer models that patronize the business models [See discussion of claim 15c above],

(d) determine the operational performances of the businesses described by the plurality of business models by simulating the plurality of business models and by simulating the environment, including simulating the customer models receiving values from the business models in response to the customer models patronizing the business models [See discussion of claim 15d above], and

(e) generate a next plurality of business models from the simulated plurality of business models by performing an evolutionary method directly on the business models, wherein the evolutionary method uses a fitness dependent on the operational business-model performances including financial performances and applies genetic operators directly to the building-blocks of business models [See discussion of claim 15e above], and

(f) repeat one or more times (d) and (e), wherein each repeat of (d) simulates that plurality of business models resulting from the previous iteration of (e) [See discussion of claim 15f above].

As per claim 39, Keane teaches a computer executable software instructions stored on a computer readable medium (Keane: Abstract, lines 20-22 read with column 3, lines 16-17, wherein "program" infers claimed "instructions" and "memory" encompasses storage media or devices, such as HD, CD, Diskette etc. which are considered computer readable and are used to store "programs or instructions"), the software instructions for causing a computer to:

(a) characterize a plurality of computer-simulateable building blocks, wherein the building blocks include one or more business elements of the business problem [See discussion of claim 35a above] and further comprise:

(i) one or more computer-simulateable value proposition (VP) building blocks which describe output values provided by businesses by comprising information describing at least one of: the natures of one or more goods or services provided, qualities of the goods or services, customers for goods and services, relations with other business models, and marketing to customers or business models [See discussion of claim 35a(i) above],

(ii) one or more computer-simulateable operational approach (OA) building blocks which describe inputs to businesses and transformations of inputs to output values by businesses by comprising information describing at least one of: inputs needed for goods or services provided, technology employed to produce the goods or services, and capital and labor needed for production [See discussion of claim 35a(ii) above], and

(iii) one or more computer-simulateable revenue mechanism (RM) building blocks which describe pricing and cost models by which businesses acquire revenues by comprising information describing at least one of: a margin or an amount per transaction, a margin or an amount per unit time, a margin or amount per unit volume, a transaction pricing mechanism, a subscription pricing mechanism, a flat rate pricing mechanism, and a membership fee pricing mechanism [See discussion of claim 35a(iii) above],

(b) describing a business-model environment, wherein the business-model environment comprises a plurality of computer-simulateable customer models, wherein the customer models patronize the business models to receive values from the business models, generating an initial plurality of business models, wherein a business model describes operations of businesses for solving the business problem, and wherein a business model comprises a plurality of building blocks and an associated operational performance model comprising a financial model **(financial model 108)** [Column 3, lines 25-27] [See discussion of claim 35b above],

(c) determining the operational performances of the businesses described by the plurality of business models by (i) simulating the plurality of business models and (ii) simulating the environment, including simulating the customer models, and receiving values from the business models [See discussion of claim 35c above], and

(d) generating a next plurality of business models from the simulated plurality of business models by performing an evolutionary method directly on the business models, wherein the evolutionary method uses a fitness dependent on the operational business-model performances including financial performances and applies genetic operators directly to the building-blocks of business models [See discussion of claim 35d above], and

(e) repeating one or more times (c) and (d), wherein each (c) simulates that plurality of business models resulting from the previous iteration of (d) [See discussion of claim 35e above].

As per claim 44, Keane teaches a method for choosing a business model to solve a selected business problem, the method comprising:

(a) describing a plurality of computer business models **(memory 102 contains at least a quality model 104 and possibly other models, such as business 105, accounting 106, consumer 107, financial 108, and macroeconomic 109)**, [Column 3, lines 25-30, Column 7, lines 6-8 and Figure 1 {104, 105, 106, 108 and 109}], each describing operations of businesses for solving said business problem **(enable a user to make certain decisions regarding which quality assurance measures to install; business model 400)** [Figure 4 {400}, described Column 2, lines 52-55 and Column 7, line 6 - Column 8, line 25], and having an ability to respond to a customer model patronizing it by sending at least one value **(product purchased data 214 and market demand and returns data 227)** to the said customer model **(business model receives information regarding consumer returns from Block 807 of the consumer model)** [Column 5, lines 28-55, Column 8, lines 16-18, Figure 4 described in Column 7, line 5-column 8, line 25];

(b) describing a business-model environment comprising a business ecosystem containing said plurality of business models and at least one customer model having an ability to choose to patronize one or more of said business models in the business ecosystem, based at least in part upon characteristics of the said business models **(business model receives information regarding consumer returns from Block 807 of the consumer model, product purchased data 214, market demand**

and returns data 227) [Column 5, lines 28-55, Column 8, lines 16-18, Figure 4 described in Column 7, line 5-column 8, line 25];

(c) determining an operational performance of each said business model in the business ecosystem containing said plurality of business models by simulating [Column 4, lines 34-36 and Figs. 2 and 4, wherein execution (or implementation) of steps of the Figures and simulation of the system infer operations for determining performance of business(es) in accordance with above discussed plurality of business models]:

(i) the said plurality of business models **(memory 102 contains at least a quality model 104 and possibly other models, such as business 105, accounting 106, consumer 107, financial 108, and macroeconomic 109)**; [Figure 1 {100 and 104, 105, 106, 108, 109}, and Column 3, lines 25-30] and

(ii) the said at least one customer model **(consumer model 107)** [Figure 1 {100 and 104, 105, 106, 108, 109}, and Column 3, lines 25-30]; and

(iii) one or more interactions between evolvable business models and customer models in which at least one of said customer models chooses to patronize at least one of said business models in the business ecosystem, based at least in part upon characteristics of the said business models, and at least one of said patronized business models responds by sending at least one value to the said at least one customer model; **(business model receives information regarding consumer returns from Block 807 of the consumer model, product purchased data 214, market demand and returns data 227)** [Column

5, lines 28-55, Column 8, lines 16-18, Figure 4 described in Column 7, line 5-column 8, line 25];

(e) repeating steps (c) and (d) at least one time **(running another period of the model)**, each said repetition of (c) simulating the plurality of business models resulting from the previous repetition of step (d) [Figure 2 {254}, column 4, lines 34-38 recited with column 6, lines 39-49, wherein "simulation continues" after the determination made at step 254, and "user given the opportunity to reconfigure (generate) next (or new) quality model to improve performance" inferring claimed "repeating the steps" for simulating models obtained in the prior (or previous) steps as per user's choice of steps including (c) and (d)]; and

(f) choosing the business model for solving the selected business problem based at least in part upon the determined fitness of the said business model **(enable a user to make certain decisions regarding which quality assurance measures to install; business model 400; which is inferred by the enablement of a user to make certain decisions regarding which quality assurance measures to install)** [Figure 4 {400}, described Column 2, lines 52-55 and Column 7, line 6 - Column 8, line 25, Figure 1 {105} and column 2, lines 54-55].

Keane does not teach the use of evolvable business models, or the steps of:

(d) generating a next plurality of evolvable business models from the said plurality of evolvable business models by performing an evolutionary method including:

(i) for at least one of said evolvable business models, determining aid model's fitness based at least in part upon the operational performance of the said evolvable business model in the business ecosystem containing said plurality of evolvable business models,

(ii) selecting at least one of said evolvable business models based at least in part upon the said at least one model's determined fitness, and

(iii) transforming the at least one selected evolvable business model into new evolvable business models incorporating at least one element of said at least one selected evolvable business model, by applying at least one genetic operator;

Shinagawa et al. is directed to utilizing genetic algorithm to find an optimal solution to a problem, resulting in the creation of new and modified delivery routes.

Shinagawa et al teaches the step of:

(d) generating **(producing)** a next plurality of evolvable **[the application of a genetic algorithms renders the models used as being evolvable]** business models **(new proposed delivery plans)** by performing an evolutionary method [Column 5, line 66 through column 6, line 54, wherein delivery planning unit 12 producing or "generating" a set or "plurality" of modified or new proposed delivery plans as indicated by column 6, lines 35-40; modified delivery route serving as new or next route and on finalizing said modified or new or next routes for all carriers, delivery planning unit 12 producing or generating new or next delivery plans which are termed as proposed

delivery plans; said delivery plans are models, lines 50-52. Moreover, said delivery models or plans representing "business models", since they relate to the business of delivery of packages, lines 52-54, and cited genetic algorithm, Column 4, lines 63-65; searching strategy optimization means 1 creates individuals 3a-3c using a genetic algorithm. The individuals 3a-3c have their respective chromosomes, each of which indicates a strategy for solution search, Column 4, lines 29-34] including:

(i) determining business-model fitness in dependence on the evolvable business-model models based at least in part upon the operational performance of the said evolvable business model in the business ecosystem containing said plurality of evolvable business models [Column 6, lines 15-23, wherein "evaluating fitness" of proposed delivery plans or models indicating "determining business model fitness" and said fitness relating to "operational business model performance" as discussed in claim 1c above; The carrier allocation unit 11 evaluates the fitness of each proposed delivery plan received from the delivery planning unit 12, Column 9, lines 12-14; The carrier allocation unit 11 evaluates chromosomes 50, 50a, and 50b by calculating the fitness values of delivery plans 41, 42, and 43 derived from them, respectively, Column 9, lines 21-24];

(ii) selecting at least one of said evolvable business models based at least in part upon the said at least one model's determined fitness [Column 6, lines 15-23, wherein allocation unit 11 "selecting fittest individuals based on their fitness values", and cited individuals pointing to delivery plans or models or

"business models", column 2, lines 22-23: individuals being candidate solutions, and said solutions are delivery plans, column 6, lines 21-23: choosing delivery plans or models as the optimal solutions; Based on the fitness values, the carrier allocation unit 11 selects a plurality of individual pairs, Column 9, lines 15-16]; and

(iii) transforming the at least one selected evolvable business model into new evolvable business models incorporating at least one element of said at least one selected evolvable business model, by applying one or more genetic operators [Column 5, lines line 66 through column 6, line 3, wherein applying genetic algorithm and its operators crossover, mutation etc. indicating reference's performing "transformation or transforming" above discussed selected delivery plans or models or business models into above discussed next or new delivery plans or business models. In support of genetic algorithm and operators thereof performing transformation, Applicant is referred to US Patent 6,480,832 B2, column 3, lines 53-65: Genetic algorithms transform populations into new populations, lines 54-55] directly to the business models, wherein the new business models incorporate elements of the selected business models **(The mated parent individuals are then subjected to a crossover process. Crossover algorithms combine one part of one parent chromosome with the other part of the other parent chromosome to produce another chromosome, thereby producing a new individual. The offspring individual**

produced through such a crossover process inherits some traits from both parents) [Column 2, lines 37-43].

Keane teaches the step of simulating quality of a business's product flow, yet Keane does not expressly teach the application of a genetic algorithm comprising selection, crossover and mutation operators for building a fittest business model. However, Shinagawa et al. discloses the use of genetic algorithms that perform the steps of performing an evolutionary method on models, including determining model fitness, selection of models based on their fitness, and transforming models by applying genetic operators to yield new models that incorporate elements of the original models. Both Keane and Shinagawa et al. are directed toward optimizing solutions in business planning situations [e.g., Keane's simulator assists a user in making business performance decisions, as seen in Column 2, lines 52-55, and Shinagawa et al. solves commodity delivery problems, as seen in Column 3, lines 1-7]. Shinagawa et al. provides a user with a problem solver "for solving mathematical programming problems, which is capable of finding better solutions at a higher speed" [Column 3, lines 13-16]. Keane's system assists a user with solving mathematical problems as well [Column 2, lines 1-23]; therefore, the Examiner submits that it would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to incorporate the steps of performing an evolutionary method on models, including determining model fitness, selection of models based on their fitness, and transforming models by applying genetic operators to yield new models that incorporate elements of the original models, as

taught by Shinagawa et al, with Keane's financial simulations in order to allow Keane to solve its financial business (i.e., mathematical programming) problems with better solutions and at a higher speed [as suggested in Column 3, lines 13-16 of Shinagawa et al.], and the combination would provide a system enabling a user to efficiently and quickly solve multi-constraint problems as commonly faced by businesses, and for use as a planning guide to determine the impact of different models on business performance.

As per claim 45, Keane teaches the method of claim 44, wherein an evolvable business model **(memory 102 contains at least a quality model 104 and possibly other models, such as business 105, accounting 106, consumer 107, financial 108, and macroeconomic 109)**, [Column 3, lines 25-30, Column 7, lines 6-8 and Figure 1 {104, 105, 106, 108 and 109}] comprises at least one building block **(capital, material and labor requirements of quality assurance measures and production, product pricing, etc.)**.

As per claim 46, Keane teaches the method of claim 45, wherein the said at least one building block is chosen from a group consisting of:

(a) at least one value proposition building block, each said value proposition building block comprising a description of at least one of: natures of one or more goods or services provided, qualities of the said goods or services provided, customers for said goods and services provided, relations with other business models, and marketing

to customers or business models **(goods/services purchased by customers, returning defective merchandise and switching to competitive produces due to defects)** [Column 5, lines 29-55];

(b) at least one operational approach building block, each said operational approach building block comprising a description of at least one of: inputs needed for one or more goods or services provided, technology employed to produce said goods or services provided, and capital and labor needed to produce said goods or services provided **(costs associated with production, including the capital, labor and material requirements, physical requirements of the plant, warehouse, etc.)** [Column 5, lines 12-14 and 29-30 recited with column 4, lines 2-10]; and

(c) at least one revenue mechanism building block, each said revenue mechanism building block comprising a description of at least one of: a margin or an amount per transaction, a margin or an amount per unit time, a margin or an amount per unit volume, a transaction pricing mechanism, a subscription pricing mechanism, a flat rate pricing mechanism, and a membership fee pricing mechanism **(pricing information for the product, initial stock price and book value, cost requirements for quality assurance measures and production)** [Figure 1 {106, 108}, column 4, lines 2-18 and column 2, line 55].

As per claim 47, Keane teaches the method of claim 44, wherein each evolvable business model **(memory 102 contains at least a quality model 104 and possibly other models, such as business 105, accounting 106, consumer 107, financial**

108, and macroeconomic 109), [Column 3, lines 25-30, Column 7, lines 6-8 and Figure 1 {104, 105, 106, 108 and 109}] has associated with it a performance model **(which is inferred by the enablement of a user to make certain decisions regarding which quality assurance measures to install)** [Figure 1 {105} and column 2, lines 54-55].

As per claim 48, Keane teaches the method of claim 47, wherein the said performance model comprises a financial model **(financial model 108)** [Column 3, lines 25-27].

As per claim 49, Keane teaches the method of claim 48, wherein the said financial model determines at least one of revenue, profit, market share, and market capitalization **(goods/services purchased by customers, returning defective merchandise and switching to competitive produces due to defects, product purchased data 214 and market demand and returns data 227)** [Column 5, lines 29-55].

As per claim 50, Keane teaches the method of claim 44, wherein the business ecosystem further comprises at least one supplier model which has the ability to interact with at least one of said plurality of evolvable business models **(business model receives information regarding consumer returns from Block 807 of the consumer model)** [Column 5, lines 28-55, Column 8, lines 16-18, Figure 4 described in Column 7,

line 5-column 8, line 25], and wherein determining an operational performance of an evolvable business model further comprises simulating the said at least one supplier model, and one or more interactions between evolvable business models, supplier models, and/or customer models **(goods/services purchased by customers, returning defective merchandise and switching to competitive produces due to defects, product purchased data 214 and market demand and returns data 227)** [Column 5, lines 29-55].

As per claim 51, Keane does not explicitly teach the method of claim 44, wherein said at least one genetic operator comprises a cross-over operator which transforms at least two parent evolvable business models into at least one new evolvable business model by combining characteristics of both parent business models into characteristics of the at least one new evolvable business model.

Keane teaches business models (as discussed above) but not cross-over operators which transform at least two parent business models into at least one new business model by combining characteristics of both parent business models into the characteristics of the at least one new business model. However, Shinagawa et al teaches a cross-over process combining one part of one parent chromosome with the other part of the other parent chromosome to produce another chromosome, thereby producing a new individual [Column 2, lines 37-43].

Keane teaches the step of simulating quality of a business's product flow, yet Keane does not expressly teach the application of a genetic algorithm comprising selection, crossover and mutation operators for building a fittest business model. However, Shinagawa et al. discloses the use of genetic algorithms that perform the steps of performing an evolutionary method on models, including determining model fitness, selection of models based on their fitness, and transforming models by applying genetic operators to yield new models that incorporate elements of the original models. Both Keane and Shinagawa et al. are directed toward optimizing solutions in business planning situations [e.g., Keane's simulator assists a user in making business performance decisions, as seen in Column 2, lines 52-55, and Shinagawa et al. solves commodity delivery problems, as seen in Column 3, lines 1-7]. Shinagawa et al. provides a user with a problem solver "for solving mathematical programming problems, which is capable of finding better solutions at a higher speed" [Column 3, lines 13-16]. Keane's system assists a user with solving mathematical problems as well [Column 2, lines 1-23]; therefore, the Examiner submits that it would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to incorporate the steps of performing an evolutionary method on models, including determining model fitness, selection of models based on their fitness, and transforming models by applying genetic operators to yield new models that incorporate elements of the original models, as taught by Shinagawa et al, with Keane's financial simulations in order to allow Keane to solve its financial business (i.e., mathematical programming) problems with better solutions and at a higher speed [as suggested in Column 3, lines 13-16 of Shinagawa et

al.], and the combination would provide a system enabling a user to efficiently and quickly solve multi-constraint problems as commonly faced by businesses, and for use as a planning guide to determine the impact of different models on business performance.

As per claim 52, although not taught by Keane, Shinagawa et al. teaches the method of claim 44, wherein said at least one genetic operator comprises a mutation operator **(mutation process)** which transforms a parent evolvable business model into a new evolvable business model by modifying a characteristic of the parent business model **(changes genes located in certain loci of a chromosome to other values, thereby producing a new individual; The mated parent individuals are then subjected to a crossover process. Crossover algorithms combine one part of one parent chromosome with the other part of the other parent chromosome to produce another chromosome, thereby producing a new individual. The offspring individual produced through such a crossover process inherits some traits from both parents)** [Column 2, lines 37-49].

Keane teaches the step of simulating quality of a business's product flow, yet Keane does not expressly teach the application of a genetic algorithm comprising selection, crossover and mutation operators for building a fittest business model. However, Shinagawa et al. discloses the use of genetic algorithms that perform the steps of performing an evolutionary method on models, including determining model

fitness, selection of models based on their fitness, and transforming models by applying genetic operators to yield new models that incorporate elements of the original models. Both Keane and Shinagawa et al. are directed toward optimizing solutions in business planning situations [e.g., Keane's simulator assists a user in making business performance decisions, as seen in Column 2, lines 52-55, and Shinagawa et al. solves commodity delivery problems, as seen in Column 3, lines 1-7]. Shinagawa et al. provides a user with a problem solver "for solving mathematical programming problems, which is capable of finding better solutions at a higher speed" [Column 3, lines 13-16]. Keane's system assists a user with solving mathematical problems as well [Column 2, lines 1-23]; therefore, the Examiner submits that it would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to incorporate the steps of performing an evolutionary method on models, including determining model fitness, selection of models based on their fitness, and transforming models by applying genetic operators to yield new models that incorporate elements of the original models, as taught by Shinagawa et al, with Keane's financial simulations in order to allow Keane to solve its financial business (i.e., mathematical programming) problems with better solutions and at a higher speed [as suggested in Column 3, lines 13-16 of Shinagawa et al.], and the combination would provide a system enabling a user to efficiently and quickly solve multi-constraint problems as commonly faced by businesses, and for use as a planning guide to determine the impact of different models on business performance.

As per claim 53, Keane teaches the method of claim 44, wherein a business model comprises a description of at least one of inputs to a business, values output from the said business, transformations of inputs into said business to values output from said business at least in part by the use of capital and labor, and at least one pricing model for said business **(costs associated with production, including the capital, labor and material requirements, physical requirements of the plant, warehouse, etc.; business model receives information regarding consumer returns from Block 807 of the consumer model, product purchased data 214, market demand and returns data 227)** [Column 4, lines 2-10, Column 5, lines 12-14, 16-18, 28-55, Column 8, lines 16-18, Figure 4 described in Column 7, line 5-column 8, line 25].

As per claim 54, Keane teaches a method for choosing a business model to solve a selected business problem, the method comprising:

(a) describing a plurality of computer-evolvable business models, each describing operations of a business for solving said business problem, each having an ability to respond to a customer model patronizing it by sending at least one value to the said customer model, each having associated with it a performance model comprising a financial model **(financial model 108)** [Column 3, lines 25-27] which has the ability to determine at least one of revenue, profit, market share and market capitalization **(costs associated with production, including the capital, labor and material requirements, physical requirements of the plant, warehouse, etc.; business**

model receives information regarding consumer returns from Block 807 of the consumer model, product purchased data 214, market demand and returns data 227; goods/services purchased by customers, returning defective merchandise and switching to competitive produces due to defects, product purchased data 214 and market demand and returns data 227) [Column 4, lines 2-10, Column 5, lines 12-14, 16-18, 28-55, Column 8, lines 16-18, Figure 4 described in Column 7, line 5-column 8, line 25], and each comprising at least one building block chosen from a group consisting of value proposition building blocks, operational approach building blocks, and revenue mechanism building blocks [see the analysis of claims 1(a), 44(a) above];

(b) describing a business-model environment comprising a business ecosystem containing said plurality of evolvable business models, at least one supplier model having an ability to interact with at least one of said plurality of evolvable business models, and at least one customer model having an ability to choose to patronize one or more of said evolvable business models in the business ecosystem, based at least in part upon characteristics of the said evolvable business models [see analysis of claims 1(b)];

(c) determining an operational performance of each said evolvable business model in the business ecosystem containing said plurality of evolvable business models by simulating:

(i) the said plurality of evolvable business models [see analysis of claim 1(c)(i)];

(ii) the said at least one supplier model [see analysis of claim 1(c)(i)];

(iii) the said at least one customer mode [see analysis of claim 1(c)(i)]; and

(iv) one or more interactions between evolvable business models, supplier models and/or customer models in which at least one of said customer models chooses to patronize at least one of said evolvable business models in the business ecosystem, based at least in part upon characteristics of the said evolvable business models, and at least one of said patronized evolvable business models responds by sending at least one value to the said at least one customer model [see analysis of claims 1(c)(i) and 1(c)(ii)];

(d) generating a next plurality of evolvable business models from the said plurality of evolvable business models by performing an evolutionary method including:

(i) for at least one of said evolvable business models, determining said model's fitness based at least in part upon the operational performance of the said evolvable business model in the business ecosystem containing said plurality of evolvable business models [see the analysis of claim 44(d)(i) above],

(ii) selecting at least one of said evolvable business models based at least in part upon the said at least one model's determined fitness [see the analysis of claim 44(d)(ii) above], and

(iii) transforming the at least one selected evolvable business model into new evolvable business models incorporating at least one element of said at least one selected evolvable business model, by applying at least one genetic operator comprising a cross-over operator which transforms at least two parent evolvable

business models into at least one new evolvable business model by combining characteristics of both parent business models into characteristics of the at least one new evolvable business model, and/or comprising a mutation operator which transforms a parent evolvable business model into a new evolvable business model by modifying a characteristic of the parent business model [see the analysis of claims 5 and 44(d)(iii) above];

(e) repeating steps (c) and (d) at least one time, each said repetition of step (c) simulating the plurality of evolvable business models resulting from the previous repetition of step (d) [see analysis of claim 2 above]; and

(f) choosing the business model for solving the selected business problem based at least in part upon the determined fitness of the said business model [see analysis of claim 44(f) above].

As per claim 55, Keane teaches a computer-readable medium having computer-readable signals stored thereon that define instructions which, as a result of being executed in a computer system having a user interface including a display and an input device, instruct the computer system to perform a method for choosing a business model to solve a selected business problem, the method comprising:

(a) describing a plurality of computer-evolvable business models, each describing operations of a business for solving said business problem and having an ability to respond to a customer model patronizing it by sending at least one value to the said customer model [see analysis of claims 1(a) and 1(b)];

(b) describing a business-model environment comprising a business ecosystem containing aid plurality of evolvable business models and at least one customer model having an ability to choose to patronize one or more of said evolvable business models in the business ecosystem, based at least in part upon characteristics of the said evolvable business models [see analysis of claims 1(b) and 1(c)];

(c) determining an operational performance of each said evolvable business model in the business ecosystem containing said plurality of evolvable business models by simulating:

(i) the said plurality of evolvable business models [see analysis of claim 1(c)(i)];

(ii) the said at least one customer model [see analysis of claim 1(c)(i)]; and

(iii) one or more interactions between evolvable business models and customer models in which at least one of said customer models chooses to patronize at least one of said evolvable business models in the business ecosystem, based at least in part upon characteristics of the said evolvable business models, and at least one of said patronized evolvable business models responds by sending at least one value to the said at least one customer model [see analysis of claims 1(c)(i) and 1(c)(ii)];

(d) generating a next plurality of evolvable business models form the said plurality of evolvable business models by performing an evolutionary method including:

(i) for at least one of said evolvable business models, determining said model's fitness based at least in part upon the operational performance of the said

evolvable business model in the business ecosystem containing said plurality of evolvable business models [see analysis of claim 1(d)(i)];

(ii) selecting at least one of said evolvable business models based at least in part upon the said at least one model's determined fitness [see analysis of claim 1(d)(ii)]; and

(iii) transforming the at least one selected evolvable business model into new evolvable business models incorporating at least one element of said at least one selected evolvable business model, by applying at least one genetic operator [see analysis of claim 1(d)(iii)];

(e) repeating steps (c) and (de) at least one time, each said repetition of step (c) simulating the plurality of evolvable business models resulting from the previous repetition of step (d) [see analysis of claim 2]; and

(f) choosing the business model for solving the selected business problem based at least in part upon the determined fitness of the said business model [see analysis of claim 3].

As per claim 56, Keane teaches a computer-readable medium according to claim 55, wherein an evolvable business model comprises at least one building block [see analysis of claim 15].

As per claim 57, Keane teaches a computer-readable medium according to claim 56, wherein the said at least one building block is chosen from a group consisting of:

(a) at least one value proposition building block, each said value proposition building block comprising a description of at least one of:

(i) natures of one or more goods or services provided [see analysis of claim 15(a)];

(ii) qualities of the said goods or services provided [see analysis of claim 15(a)];

(iii) customers for said goods and services provided [see analysis of claim 15(a)];

(iv) relations with other business models [see analysis of claim 15(a)]; and

(v) marketing to customers or business models [see analysis of claim 15(a)];

(b) at least one operational approach building block, each said operational approach building block comprising a description of at least one of:

(i) inputs needed for one or more goods or services provided **(costs associated with production, including the capital, labor and material requirements, physical requirements of the plant, warehouse, etc.)** [Column 4, lines 2-10, Column 5, lines 12-14, 16-18, 28-55, Column 8, lines 16-18, Figure 4 described in Column 7, line 5-column 8, line 25],

(ii) technology employed to produce said goods or services provided [see analysis of claim 11 above]; and

(iii) capital and labor needed to produce said goods or services provided **(costs associated with production, including the capital, labor and material requirements, physical requirements of the plant, warehouse, etc.)** [Column 4, lines 2-10, Column 5, lines 12-14, 16-18, 28-55, Column 8, lines 16-18, Figure 4 described in Column 7, line 5-column 8, line 25]; and

(c) at least one revenue mechanism building block, each said revenue mechanism building block comprising a description of at least one of a margin or an amount per transaction, a margin or an amount per unit time, a margin or an amount per unit volume, a transaction pricing mechanism, a subscription pricing mechanism, a flat rate pricing mechanism and a membership fee pricing mechanism [see analysis of claim 27 above].

As per claim 58, Keane teaches a computer-readable medium according to claim 55, wherein each evolvable business model has associated with it a performance model [see analysis of claim 1(a)].

As per claim 59, Keane teaches a computer-readable medium according to claim 58, wherein the said performance model comprises a financial model [see analysis of claim 1(a)].

As per claim 60, Keane teaches a computer-readable medium according to claim 59, wherein the said financial model determines at least one of revenue, profit, market share and market capitalization [see analysis of claim 1(a)].

As per claim 61, Keane teaches a computer-readable medium according to claim 55, wherein the business ecosystem further comprises at least one supplier model which has the ability to interact with at least one of said plurality of evolvable business models, and wherein determining an operational performance of an evolvable business model further comprises simulating the said at least one supplier model, and one or more interactions between evolvable business models, supplier models, and/or customer models [see analysis of claim 4 above].

As per claim 62, Keane and Shinagawa et al. teach a computer-readable medium according to claim 55, wherein said at least one genetic operator comprises a cross-over operator which transforms at least two parent business models into at least one new evolvable business model by combining characteristics of both parent business models into characteristics of the at least one new evolvable business model [see analysis of claim 5 above].

As per claim 63, Keane and Shinagawa et al. teach a computer-readable medium according to claim 55, wherein said at least one genetic operator comprises a mutation operator which transforms a parent evolvable business model into a new

evolvable business model by modifying a characteristic of the parent business model [see analysis of claim 6 above].

As per claim 64, Keane teaches a computer-readable medium according to claim 55, wherein an evolvable business model comprises a description of at least one of inputs to a business, values output from the said business, transformations of inputs into said business to values output from said business at least in part by the use of capital and labor, and at least one pricing model for said business [see analysis of claim 53 above].

As per claim 65, Keane teaches a computer-readable medium having computer-readable signals stored thereon that define instructions which, as a result of being executed in a computer system having a user interface including a display and an input device, instruct the computer system to perform a method for choosing a business model to solve a selected business problem, the method comprising:

(a) describing a plurality of computer-evolvable business models, each describing operations of a business for solving said business problem, each having an ability to respond to a customer model patronizing it by sending at least one value to the said customer model, each having associated with it a performance model comprising a financial model which has the ability to determine at lest one of revenue, profit, market share and market capitalization, and each comprising at least one building block chosen from a group consisting of value proposition building blocks, operational approach

building blocks, and revenue mechanism building blocks [see analysis of claim 54(a) above];

(b) describing a business-model environment comprising a business ecosystem containing a business ecosystem containing said plurality of evolvable business models, at least one supplier model having an ability to interact with at least one of said plurality of evolvable business models, and at least one customer model having an ability to choose to patronize one or more of said evolvable business models in the business ecosystem, based at least in part upon characteristics of the said evolvable business models [see analysis of claim 54(b) above];

(c) determining an operational performance of said each evolvable business mode in the business ecosystem containing said plurality of evolvable business models by simulating:

(i) the said plurality of evolvable business models;

(ii) the said at least one supplier model;

(iii) the said at least one customer model; and

(iv) one or more interactions between evolvable business models, supplier models and/or customer models in which at least one of said customer models chooses to patronize at least one of said evolvable business models in the business ecosystem, based at least in part upon characteristics of the said evolvable business models, and at least one of said patronized evolvable business models responds by sending at least one value to the said at least one customer model [see analysis of claim 54(c) above];

(d) generating a next plurality of evolvable business models from the said plurality of evolvable business models by performing an evolutionary method including:

(i) for at least one of said evolvable business models, determining aid models fitness based at least in part upon the operational performance of the said evolvable business model in the business ecosystem containing said plurality of evolvable business models [see analysis of claim 54(d)(i) above];

(ii) selecting at least one of said evolvable business models based at least in part upon the said at least one model's determined fitness [see analysis of claim 54(d)(i) above]; and

(iii) transforming the at least one selected evolvable business model into new evolvable business models incorporating at least one element of said at least one selected evolvable business model, by applying at least one genetic operator comprising a cross-over operator which transforms at least two parent evolvable business models into at least one new evolvable business model by combining characteristics of both parent business models into characteristics of the at least one new evolvable business model, and/or comprising a mutation operator which transforms a parent evolvable business model into a new evolvable business model by modifying a characteristic of the parent business model [see analysis of claim 54(d)(iii) above];

(e) repeating steps (c) and (de) at least one time, each said repetition of step (c) simulating the plurality of evolvable business models resulting form the previous repetition of step (d) [see analysis of claim 54(e) above]; and

(f) choosing the business model for solving the selected business problem based at least in part upon the determined fitness of the said business model [see analysis of claim 54(f) above].

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter Choi whose telephone number is (571) 272 6971. The examiner can normally be reached on M-F 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tariq Hafiz can be reached on (571) 272-6729. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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PC

August 3, 2006

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